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Darby & Darby P.C.
805 Third Avenue
New York, NY 10022

EXAMINER

WILLIAMS, ERIC M

ART UNIT

PAPER NUMBER

3681

DATE MAILED: 12/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/931,708

Applicant(s)

REIK ET AL.

Examiner

Eric M Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 4-6, 11, 12, 28-31 and 36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-10, 13-27, 32-35 and 37-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other:

DETAILED ACTION

1. This action is in response to the application filed 08-16-2001 for serial number 09/931708.

Election/Restrictions

2. Claims 4-6, 11, 12, 28-31 and 36 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Papers filed 10-16-2002. Applicant stated claims 1-3, 7-10, 13-27, and 32-50 are readable on the elected Species 2. The above mentioned claims, excluding claim 36 which is drawn to non-elected species of Figure 7, were examined.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore,

- o.k. ^{cancelled} 1.) the two pressure plates disposed in and rotatable with the housing (Claim 13)
- o.k. 2.) the means for separably connecting the housing to the output member so that the clutch disc can remain coupled to the input member prior, during and upon separation (Claim 37)

must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. A proposed drawing correction or corrected drawings are required in reply to

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the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Ok, Fig. 3 = Fig. 7
The drawings are objected to under 37 CFR 1.83(a) because they fail to show element 7, which is considered part of the housing, connected to the housing element 4 as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-3, 7-10, 13-27, and 32-35, and 37-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, it is not clear how the means for selectively coupling the clutch disc to the housing can have one cylinder mounted on the housing in a *fixed* position rotatable with reference to the housing. Even if peered from the direction of the cylinder's axis, it is not understood how the cylinder is fixed **and** rotatable with reference to the housing.

In claim 2 it is not clear how the cylinder is rotatable about the predetermined axis.

In claim 17 it is not clear how a bearing surrounds the annular portion of the housing.

In claim 37 it is unclear what element in Figure 2, if any, is the means for separably connecting the housing to the output member so that the clutch disc can remain coupled to the input member prior, during and upon separation of the housing from the output member.

In claim 41, it is not clear how the pilot bearing of Figure 2 is rotatably journalled on the input or output member in the other of the input and output members.

In claim 42, it is unclear how the actor is rotatable with **and** axially fixed relative to the housing.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims rejected under 35 U.S.C. 102(b) as being anticipated by Checa Patent No. 5,205,387. The following reproduced claims set forth the corresponding structure of Checa.

1. A power train (Fig.1), comprising:
an output member (20) rotatable about a predetermined axis;
a rotary input member (31); and means for transmitting torque between said input

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and output members (Fig.1), including an engageable and disengageable friction clutch (Fig.1) having a housing (21, 28) rotatable with said output member about said axis, a rotary clutch disc (26) arranged to rotate with said input member, and means for selectively coupling said clutch disc to said housing (Fig. 1), including at least one cylinder and piston unit (51, 52) having at least one cylinder (51) mounted on said housing in a fixed position, as seen in the direction of said axis, and rotatable with reference to said housing.

2. The power train of claim 1, wherein said at least one cylinder is rotatable about said predetermined axis (Fig. 1 as best-understood).

3. The power train of claim 1, wherein said at least one unit further comprises an annular piston (52) reciprocable in said at least one cylinder.

7. The power train of claim 1, wherein said at least one cylinder (51) is coaxial with said housing and is rotatable relative to said housing about said axis (Fig. 1), said torque transmitting means further including an antifriction bearing (1b) interposed between said housing and said at least one cylinder.

8. The power train of claim 1, further comprising a first bearing interposed between said housing and said at least one cylinder (1b), said at least one unit further comprising a piston (52) reciprocable in said at least one cylinder and a second bearing (1a) interposed between said piston and a resilient element (23) of said clutch, said resilient element being arranged to bias a pressure plate (24) of said clutch against said clutch disc in the engaged condition of said clutch.

9. The power train of claim 8, wherein said bearings spacedly surround said axis, said first bearing being disposed at a first radial distance from said axis and said second bearing being disposed at a second radial distance from said axis (Fig. 1).

10. The power train of claim 9, wherein said first distance at least approximates said second distance (Fig. 1).

13. The power train of claim 1, wherein said means for selectively coupling said clutch disc to said housing further includes two pressure plates disposed in and rotatable with said housing and flanking said clutch disc, said housing including a wall surrounding said pressure plates and said at least one cylinder and piston unit further having a piston movable in said at least one cylinder to at least one position in which one of, said pressure plates urges said clutch disc into frictional engagement with the other of said pressure plates (column 2 lines 50- 69 describes).

16. The power train of claim 1, wherein said 2 housing includes an annular portion nearest to and surrounding said axis, said means for selectively coupling further including a bearing centered by said annular portion.

17. The power train of claim 16, wherein said bearing surrounds said annular portion of said housing (Fig. 1).

18. The power train of claim 1, wherein said housing of said clutch includes a flywheel (21) and a cover (22) having a radially outer portion remote from said axis and affixed to said flywheel and a radially inner portion adjacent to but spaced apart from and surrounding said axis (Fig. 1), said clutch further having at least one component (30)

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disposed in said housing between said flywheel and said cover as seen in the direction of said axis.

19. The power train of claim 1, further comprising means for separably coupling said at least one cylinder with said housing (2).

20. The power train of claim 1, further comprising an antifriction bearing (1b) between said at least one cylinder and said housing, and means for separably coupling said bearing with said housing of said friction clutch (70 and 71).

21. The power train of claim 20, wherein said bearing has an outer race (Fig. 1 not labeled) and said coupling means (70 and 71) is arranged to separably connect said housing with said outer race.

22. The power train of claim 20, wherein said coupling means is selected from the group consisting of a bayonet lock, a snap fastener and a detent (70 and 71).

26. The power train of claim 1, further comprising at least one fixed component (2), said at least one cylinder (51) being arranged to bear upon said at least one fixed component while receiving torque from one of said input and output members.

27. The power train of claim 26, further comprising a variable-speed transmission having an input shaft including said rotary input member, said transmission further comprising a stationary case and said fixed component forming part of said case (Fig. 1 and Specification).

38. The power train of claim 37, wherein said input member forms part of a change-speed transmission (Fig. 1 and Specification).

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39. The power train of claim 1, further comprising a pilot bearing (Fig. 1 not labeled) between a prime mover including said output member and said clutch.

40. The power train of claim 1, further comprising a pilot bearing between a prime mover including said output member and a driven assembly including said input member (Fig. 1).

41. The power train of claim 1, further comprising a pilot bearing rotatably journalling one of said input and output members in the other of said input and output members (Fig. 1).

42. A power train, comprising: a prime mover having an output member (20) rotatable about a predetermined axis; a driven unit including a rotary input member (31) coaxial with said output member; and an engageable and disengageable friction clutch arranged to transmit torque between said input and output members and including a housing (21, 22) rotatable with said output member about said axis, a clutch disc (26) disposed in said housing and affixed to said input member, a pressure plate (24) movable in the direction of said axis and arranged to rotate with and disposed in said housing, an energy storing device (23) disposed in said housing and operable to bias said pressure plate against said clutch disc to thus engage the clutch and establish a torque transmitting connection between said input and output members, and means for engaging said clutch including an actor (52) rotatable with and axially fixed relative to said housing, said actor including means for moving said energy storing device relative to said housing (30 and 4).

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43. The power train of claim 42, wherein said clutch engaging means further includes a bearing (1a) interposed between said actor and said energy storing device.

46. The power train of claim 45, wherein said actor is coaxial with said input and output members (52).

48. The power train of claim 42, wherein said prime mover is the engine of a motor vehicle and said driven unit further includes a change-speed transmission (Fig. 1 and Specification).

49. The power train of claim 42, wherein said clutch disc includes friction linings (27) engageable by said pressure plate and a torsional vibration damper (25) between said friction linings and said input member.

50. The power train of claim 42, wherein said energy storing device includes a diaphragm spring (23) and said clutch further comprises a counterpressure plate forming part of said housing (21), said clutch disc being disposed between said pressure plate and said counterpressure plate as seen in the direction of said axis (Fig. 1).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Checa '387 in view of Feigler Patent No. 5,284,233.

Checa discloses all the limitations of claims 15 and 16 but lacks any specific teaching of a portion of the housing consisting of sheet metal from a blank. Feigler '233 discloses a clutch with at least a portion of the housing made of sheet metal from a blank (column 4 lines 64-69). It would have been obvious to one of ordinary skill in the art at the time of this invention to modify Checa's clutch such that the housing is made of a sheet metal blank, in view of '233, to simplify the manufacturing process.

10. Claims 23-25, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Checa '387 in view of Babcock Patent No. 4,995,492.

Checa discloses all the limitations of claims 23-25 and 33 but does not specifically disclose a portion of the cylinder made of a one-piece, injection molded, plastic material. Babcock '492 discloses a clutch with a one piece, plastic, injection molded cylinder. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Checa such that the clutch had a cylinder made of a one-piece, injection molded, plastic material, in view of Babcock '492, to simplify the manufacturing process and reduce the weight of the clutch. It also would have been obvious to one of ordinary skill in the art at the time of the invention to modify Checa such that the clutch was a push type clutch, in view of Babcock '492, to reduce the length of the cylinder and piston unit to reduce manufacturing cost.

11. Claims 32 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Checa '387 in view of Reik et al. 5,409,901.

Checa discloses all the limitations of claims 32 and 47 but does not specifically disclose means for compensating for wear. Reik et al. '901 discloses a clutch with a wear compensator, therefore, it would have been obvious to one of ordinary skill in the art at the time of this invention to modify Checa such that it included a wear compensator, in view of Reik, to compensate for the wear of the friction discs.

12. Claims 34, 35, 44 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Checa '387 in view of Albers et al. Patent No. 5,135,091.

Checa '387 discloses all the limitations of claims 34 and 35, but does not specifically disclose means for automatically supplying fluid to the at least one unit including a master cylinder, and an electrically or mechanically operated actor. Albers et al. '091 discloses an apparatus for operating clutches in motor vehicles with a master cylinder automatically supplying fluid to the at least one cylinder with an electrically and mechanically operated actor. It would have been obvious to one of ordinary skill in the art at the time of this invention to modify Checa such that the clutch included means for automatically supplying fluid including a master cylinder, in view of Albers '091, to regulate and automatically control the operation of the clutch.

13. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Checa '387 in view of Jackel et al. Patent No. 6,450,314.

Checa discloses all the limitations of claim 37, but does not specifically disclose means for separably connecting the housing to the output member such that the clutch disc can stay coupled to the input member prior, during and upon separation of the housing. Jackel '314 discloses a clutch (Fig. 3) with a means for separably coupling the

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housing to the output members such that the clutch disc stays connected to the input member prior, during and upon separation of the housing. It would have been obvious to one of ordinary skill in the art at the time of this invention to modify Checa such that the clutch disc with means for separably coupling the housing to the input member, in view of Jackel '314 so that the clutch components were more easily accessible.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patents Friedman 4,729,464, Feigler, 5,284,233, Corral 5,273,145, Doremus 5,398,796, Corral 5,577,585, Rohs et al. 6,260,683, Young 6,360,863, Tobiasz 6,354,188 all disclose clutches with piston and cylinder units with the cylinder rotatable relative to the housing. Winkelmann et al. Patent No. 6,244,409 discloses a clutch with an injection molded, plastic cylinder.


15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric M Williams whose telephone number is 703-305-0607. The examiner can normally be reached on Mon. - Fri. from 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A Marmor can be reached on 703-308-0830.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.



EMW
December 2, 2002



RODNEY H. BONCK
PRIMARY EXAMINER
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